

THE  
AMERICAN JOURNAL  
OF  
PHYSIOLOGY

VOLUME 140

BALTIMORE, MD.  
1943-1944



## CONTENTS

No. 1. OCTOBER, 1943

Capillary Permeability to Horse Proteins in Burn-Shock. Martin G. Netsky and Samuel S. Leiter.....	1
Water Shifts in Deep Hypothermia. Henry G. Barbour, Elizabeth A. McKay and William P. Griffith.....	9
Further Studies on the Water Balance of Frogs. F. Brunn.....	20
Do Rats Thrive When Drinking Sea Water. Edward F. Adolph.....	25
The Basal Metabolism of Mid-Western College Women. Martha S. Piltman, Dena Cederquist, Bernice L. Kunerth, Virginia Shinkle, Margaret A. Ohlson, Charlotte M. Young, Eva Donelson, Lucile M. Wall, Hughina McKay, Mary Brown Patton and Gladys M. Kinsman.....	33
Indicator Yellow. Arlington C. Krause.....	40
The Effect of Adrenalectomy on the Absorption of the Short Chain Fatty Acids and Their Triglycerides. Lucien A. Bavela.....	44
A Study with Radioactive Isotopes of the Permeability of the Blood-Cerebrospinal Fluid Barrier to Ions. David M. Greenberg, Robert B. Aird, Muriel D. D. Boelter, W. Wesley Campbell, Waldo E. Cohn and Makio M. Murayama.....	47
Efficacy of Isotonic Sodium Chloride and Glucose Solutions in Preventing Shock Following Venous Occlusion of a Limb in the Dog. L. N. Katz, L. Friedberg and R. Asher.....	65
Studies on the Physiology of Manganese in the Rat. L. W. Wachtel, C. A. Elvehjem and E. B. Hart.....	72
The Peripheral Visual Acuity of 100 Subjects. Frank N. Low.....	83
The Production of Hypothalamic Obesity in Rats Already Displaying Chronic Hypopituitarism. A. W. Hetherington.....	89
Inhibition of the Turtle's Atria by Single Induction Shocks Applied Directly. Frank P. Knowlton.....	93
The Adrenals and Hypophysis in the Carbohydrate Metabolism of the Eviscerated Rat. Jane A. Russell.....	98
Observations on Injury and Repair of Peripheral Nerves. Hiram E. Essex and Nilson de Rezende.....	107
A Comparative Study of Muscle Atrophies Caused by Denervation and Acute Inanition. H. M. Hines, J. D. Thomson and B. Lazere.....	115
The Effect of Anoxia on Peristalsis of the Small and Large Intestine. Edward J. Van Liere, David W. Northup, J. Clifford Stickney and George A. Emerson.....	119

No. 2. NOVEMBER, 1943

The Effect of Severe Hemorrhage, Seasonal Temperature and Diurnal Variation on Blood Lactate in the Dog. Major M. Swan.....	125
Mucus, Acid and Water Secretion in the Stomach following the Injection of Pilocarpine. Franklin Hollander and Julius Stein.....	136
A Comparison of the Configuration in the Electrocardiogram of Endocardial and Epicardial Extrasystoles. H. E. Hoff and L. H. Nahum.....	148
A Renal Reabsorptive Mechanism in the Dog Common to Glycin and Creatine. Robert F. Pitts.....	156
Rapid Acclimatization to Work in Hot Climates. Sid Robinson, E. S. Turrell, H. S. Belding and S. M. Horvath.....	168
Consecutive Changes in Cutaneous Blood Flow, Temperature, Metabolism and Hematocrit Readings during Prolonged Anesthesia with Morphine and Barbital. Harold D. Green, Neil D. Nickerson, Robert N. Lewis and Bernard L. Brofman.....	177

<b>Metabolism of the Perfused Dog's Brain.</b> <i>Carroll A. Handley, H. Morrow Sweeney, Quinten Scherman and Robert Severance</i> .....	190
<b>The Effectiveness of Plasma, Gelatin and Saline Transfusions in Preventing Shock Induced by Leg Muscle Trauma and Tourniquets.</b> <i>W. Kleinberg, J. W. Remington, W. J. Eversole, R. R. Overman and W. W. Swingle</i> .....	197
<b>The Eccentricity of Standing and Its Cause.</b> <i>F. A. Hellebrandt, Bette G. Nelson and Eleanor M. Larsen</i> .....	205
<b>On the Constitution of Prothrombin.</b> <i>Armand J. Quick</i> .....	212
<b>The Effect of Epinephrine upon Frog Renal Hemodynamics in the Intact Animal.</b> <i>Roy P. Forster</i> .....	221
<b>Blood Pressure Responses of Dogs to Vitamin A and Vitamin D<sub>2</sub>.</b> <i>L. N. Katz, S. Rodbard and J. Meyer</i> .....	226
<b>The Transfer of Androgens in Parabiotic Rats.</b> <i>Elva G. Shipley, Roland K. Meyer and Clyde Biddulph</i> .....	230
<b>Effects of Anesthetic Dosage of Pentobarbital Sodium on Renal Function and Blood Pressure in Dogs.</b> <i>A. C. Corcoran and Irvine H. Page</i> .....	234
<b>The Effect of Vitamin A on Some Renal Functions of the Dog.</b> <i>R. J. Bing</i> .....	240
<b>The Effect of Atropine and Quinidine Sulphate on Atrophy and Fibrillation in Denervated Skeletal Muscle.</b> <i>D. Y. Solandt, D. B. DeLury and John Hunter</i> .....	247
<b>The Effect of Temperature of the Blood on the Heart Rate.</b> <i>Ernest K. Landsteiner and Morris Hayes</i> .....	256
<b>The Effect of the Administration of Estrogen on the Mechanism of Ascorbic Acid Excretion in the Dog.</b> <i>Ewald E. Selkurt, L. James Talbot and C. Riley Houck</i> .....	260
<b>Neuromuscular Transmission in the Single Nerve and Muscle Fiber Preparation.</b> <i>S. E. Steiman</i> .....	269
<b>The Kidney as a Source of Glucose in the Eviscerated Rat.</b> <i>Roger M. Reinecke</i> .....	276

## No. 3. DECEMBER, 1943

<b>The Effect of Saline Washings of Isolated Jejunal Loops on Gastric Secretion.</b> <i>William DeW. Andrus, Jere W. Lord, Jr., Paul Steffko and James A. Dingwall, III</i> .....	287
<b>Studies on the Effect of Anoxic Anoxia on the Central Nervous System.</b> <i>M. Kessler, H. Hailman and E. Gellhorn</i> .....	291
<b>The Effect of Anoxic and Anemic Anoxia on the Leucocyte Count.</b> <i>C. H. Cress, F. B. Clare and E. Gellhorn</i> .....	299
<b>The Effects of Polycythemia and of a Carrot Diet on Resistance to Anoxia.</b> <i>Paul Wetzig and Fred E. D'Amour</i> .....	304
<b>Water and Fat Content of Orbital Tissues of Guinea Pigs with Experimental Exophthalmos Produced by Extracts of the Anterior Pituitary Gland.</b> <i>George K. Smelser</i> .....	308
<b>The Absence of Phosphate Transfer in Oxidative Muscular Contraction.</b> <i>Jacob Sacks</i> .....	316
<b>The Persistence of Heat Acclimatization in Man.</b> <i>Austin Henschel, Henry Longstreet Taylor and Ancel Keys</i> .....	321
<b>Some Effects of Pectin Solutions During Posthemorrhagic Hypotension.</b> <i>Samuel Middleton and Carl J. Wiggers</i> .....	326
<b>The Renal Excretion of Chloride by the Normal and by the Diabetes Insipidus Dog.</b> <i>Ruth S. Hare, Kendrick Hare and Donald M. Phillips</i> .....	334
<b>Increased Red Blood Cell Fragility after Fat Ingestion.</b> <i>Joan Longini and Victor Johnson</i> .....	349
<b>The Effect of Oxygen Deprivation on the Relation between Stimulus Intensity and the Latency of Visual After-Images.</b> <i>R. A. McFarland, L. M. Hurvich and M. H. Halperin</i> .....	354
<b>The Effect of Cyanide and other Metal Binding Substances on the Pharmacological Action of Epinephrine.</b> <i>Jonas S. Friedenwald and Wilhelm Buschke</i> .....	367

Some Effects of Low Barometric Pressures on Kidney Function in the White Rat. <i>Herbert Silvette</i> .....	374
The Effects of Low Barometric Pressures on the Structure of the Kidneys of the White Rat. <i>James E. Kindred</i> .....	387
The Validity of "Ovulation Potentials". <i>James M. Snodgrass, John Rock and Miriam F. Menkin</i> .....	394
Rôle of the Kidneys in the Resistance of Rats to Hemorrhage. <i>Henry T. Bahnson</i> .....	416
The Measurement of Bleeding Volume in the Dog for Studies on Blood Substitutes. <i>Hampden Lawson</i> .....	420
The Relative Value of Various Fluids in Replacement of Blood Lost by Hemorrhage, with Special Reference to the Value of Gelatin Solutions. <i>Hampden Lawson and W. S. Rehm</i> .....	431
The Effect of the Sodium Chloride Intake on the Work Performance of Man During Exposure to Dry Heat and Experimental Heat Exhaustion. <i>Henry Longstreet Taylor, Austin Henschel, Olaf Mickelsen and Ancel Keys</i> .....	439
Effects of Purified Antero-Pituitary Hormones on the Carbohydrate Stores of Hypophysectomized Rats. <i>V. V. Herring and Herbert M. Evans</i> .....	452

NO. 4. JANUARY, 1944

The Effect of Repeated Determinations on the Basal Metabolism of Children. <i>Robert C. Lewis, Anna Marie Duval and Alberta Iliff</i> .....	461
The Effect of Damage to the Tracheal Mucosa upon the Drainage of Respiratory Tract Fluid. <i>Eldon M. Boyd, W. F. Perry and Mary E. T. Stevens</i> .....	467
Carbohydrate Regulation under Severe Anoxic Conditions. <i>L. Van Middlesworth, R. F. Kline and S. W. Britton</i> .....	474
The Effect of Sulfonamides on the Blood Oxygen and Carbon Dioxide Capacity, Arterial Saturation and Blood Pigments. <i>John F. Hall, Jr.</i> .....	483
The Nervous Factor in Shock Induced by Muscle Trauma in Normal Dogs. <i>W. J. EverSOLE, W. Kleinberg, R. R. Overman, J. W. Remington and W. W. Swingle</i> .....	490
Changes in the Renin-Angiotonin System in Hemorrhagic Shock. <i>Dean A. Collins and Angie S. Hamilton</i> . With the technical assistance of Margaret Casey Collins and Andrew Sokalchuk.....	499
Further Study of Boron in the Nutrition of the Rat. <i>J. D. Teresi, E. Hove, C. A. Elvehjem and E. B. Hart</i> .....	513
Cardiac Output and Total Peripheral Resistance Measurements in Experimental Dogs. <i>Harold C. Wiggers</i> .....	519
A Comparison of the Renal Reabsorptive Processes for Several Amino Acids. <i>Robert F. Pitts</i> .....	535
The Relation between Uric Acid Excretion and Hippuric Acid Synthesis in Man. <i>Stanley T. Michael, Joseph M. Looney and Embrie J. Borkovic</i> .....	548
In Vivo Hemolysis Produced by Soap Injection. <i>L. Willard Freeman, Arthur Loewy and Victor Johnson</i> .....	556
Action of Equine Gonadotropin in Normal and Hypophysectomized Immature Male Rat. <i>James H. Leathem</i> .....	561
Sensitivity of <i>Drosophila</i> to Poisoning by Oxygen. <i>Carroll M. Williams and Henry K. Beecher</i> .....	566
Specific Gravity and Total Nitrogen of Pancreatic Juice Secreted in Response to Various Stimuli. <i>J. Earl Thomas and J. O. Crider</i> .....	574
The Testing of Color Vision in Relation to Vitamin A Administration. <i>W. F. Hamilton, A. P. Briggs and R. E. Butler</i> .....	578
Relation of Heart Rate to Slow Waves in the Electro-Encephalogram During Over-ventilation. <i>Chester W. Darrow and Julian H. Pathman</i> .....	583

<b>The Effect of Crystalloid and Protein-Containing Solutions on the Body Fluids and Circulating Plasma Proteins. C. T. Ashworth, Z. W. Hutcheson, W. T. Payne and A. W. Jester.</b> .....	589
<b>Radioactive Phosphate as an Indicator of the Relationship between the Phosphate Changes of Blood, Muscle and Liver, Following the Administration of Insulin. Nathan O. Kaplan and David M. Greenberg.</b> .....	598
<b>The Effect of Thiamine Deficiency and of Reduced Food Intake on Resistance to Low Oxygen Tension in the Cat. Dietrich C. Smith, Robert H. Oster and James E. P. Toman.</b> .....	603

NO. 5. FEBRUARY, 1944

<b>The Rate of Decline in Resistance to Anoxia of Rabbits, Dogs and Guinea Pigs from the Onset of Viability to Adult Life. Howard G. Glass, Franklin F. Snyder and Elizabeth Webster.</b> .....	609
<b>Nerve Fiber Counts and Muscle Tension After Nerve Regeneration in The Rat. Paul Weiss and C. J. Campbell.</b> .....	616
<b>Purification and Bioassay of Tissue Extracts Capable of Lowering the Blood Pressure of Hypertensive Rats. J. W. Remington, G. F. Carland, V. A. Drill and W. W. Swingle.</b> .....	627
<b>Plasma Retention, Urinary Excretion and Effect Upon Circulating Total Red Cell Volume of Intravenous Gelatin in Dogs with Diminished Plasma Volume. J. Maxwell Little and J. T. Dameron.</b> .....	636
<b>Previous Diet and The Apparent Utilization of Fat in The Absence of The Liver. Sidney Roberts, Leo T. Samuels and Roger M. Reinecke.</b> .....	639
<b>The Influence of The Army Pack on Postural Stability and Stance Mechanics. F. A. Hellebrandt, E. Corinne Fries, Eleanor M. Larsen and L. E. A. Kelso.</b> .....	645
<b>The Interaction of Myelinated Fibers in Mammalian Nerve Trunks. Arturo Rosenbluth.</b> .....	656
<b>Metabolism of Radio-Iodine in The Thyroids of Rats Exposed to High or Low Temperatures. C. P. Leblond, J. Gross, W. Peacock and R. D. Evans.</b> .....	671
<b>Cardiac Output and Total Peripheral Resistance in Post-Hemorrhagic Hypotension and Shock. Harold C. Wiggers and Samuel Middleton.</b> .....	677
<b>The Renal Amino Acid Clearance in The Normal Dog. E. Goetsch, J. D. Lytle, W. M. Grim and P. Dunbar.</b> .....	688
<b>The Effect of Thyroxin on The Maximum Rate of Transfer of Glucose and Diodrast by The Renal Tubules. John J. Eiler, T. L. Althausen and Mabel Stockholm.</b> .....	699
<b>Stimulation of Pepsin Secretion by Means of Acid in The Intestine. M. H. F. Friedman, I. J. Pincus, J. Earl Thomas and M. E. Rehfuss.</b> .....	708
<b>The Low Incidence of Adrenal Alterations in Black Rats on Filtrate Factor Deficient Diets. Elaine P. Ralli and Irving Graef.</b> .....	713
<b>Positive Injury Potentials of The Stomach. Warren S. Rehm.</b> .....	720
<b>Dynamics of Collateral Circulations. Harold D. Green, Richard S. Cosby and Karl H. Radzow.</b> .....	726
<b>Red Cell Volume, Plasma Albumin and Globulin in Fatal Surgical Shock Due To Repeated Hemorrhage. Robert Elman, Carl Lischer and Harriet W. Davey.</b> .....	737
<b>Index.</b> .....	743